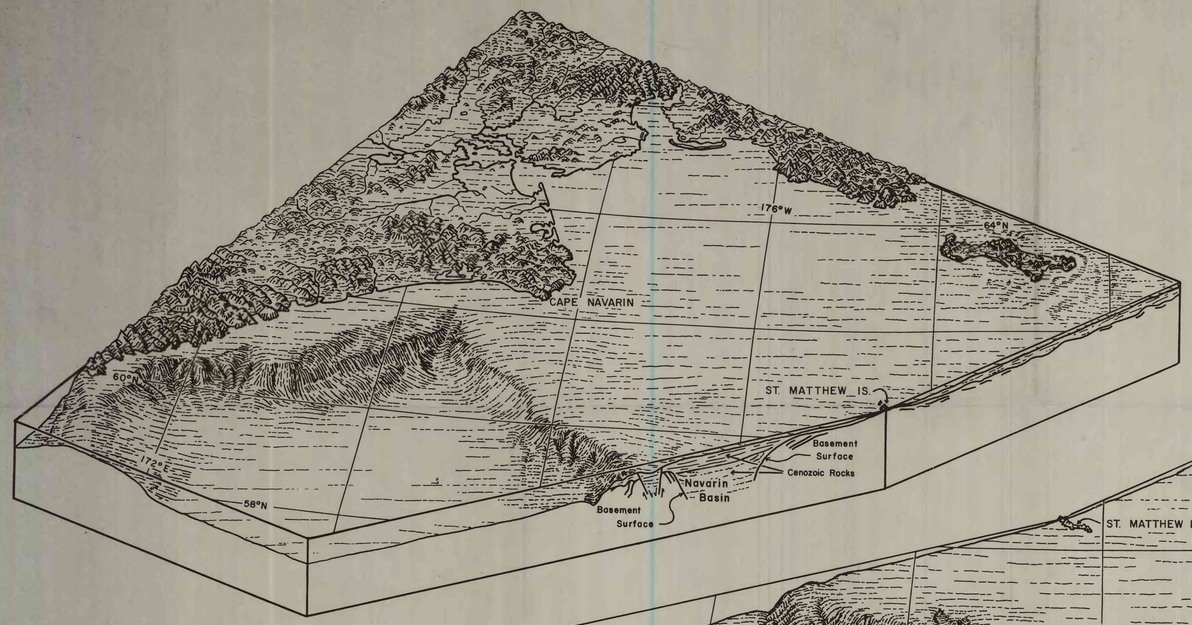
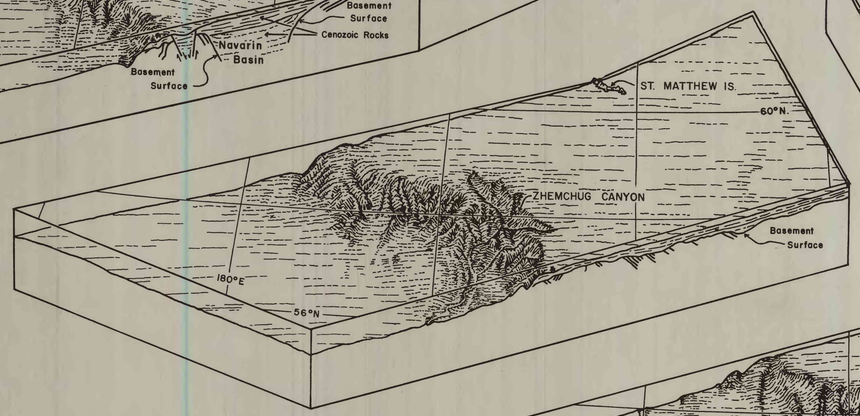
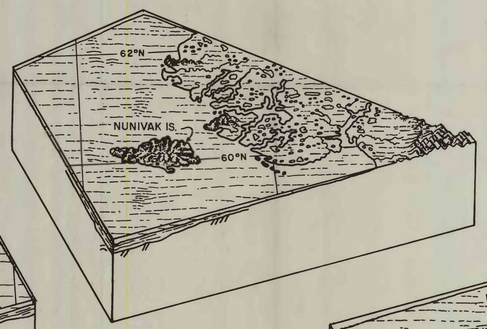
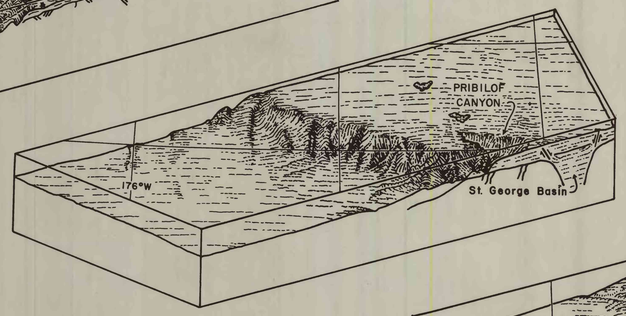
Department of the Interior
United States Geological Survey

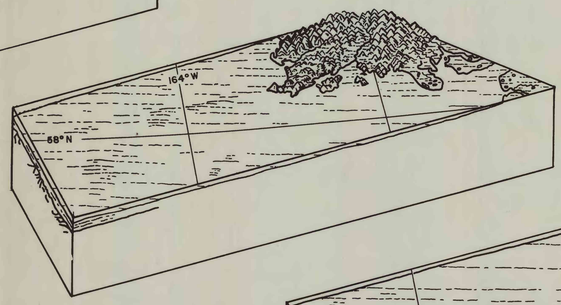
Open-file 75-1 Map
Sheet 2

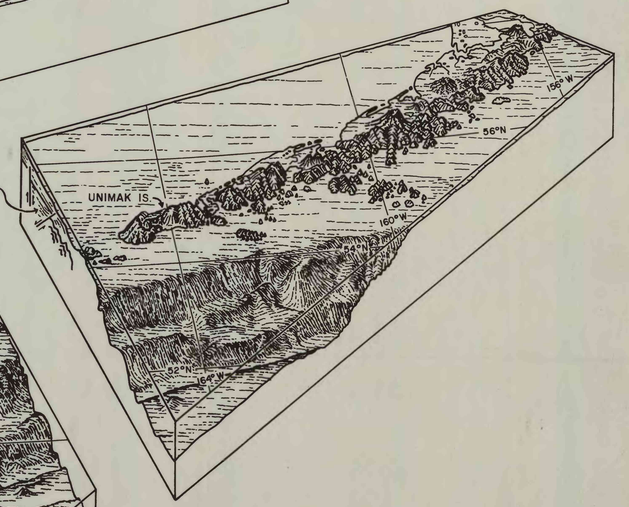


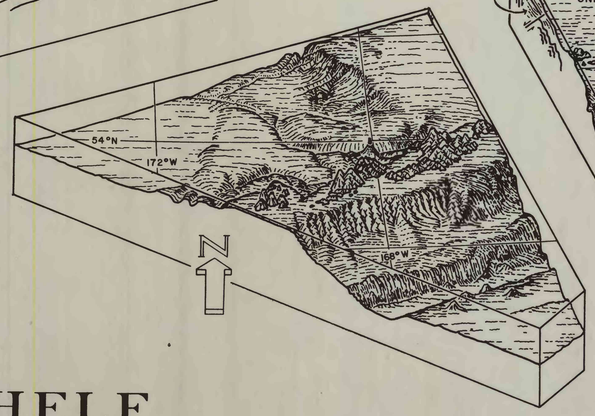




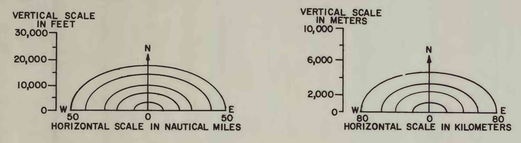




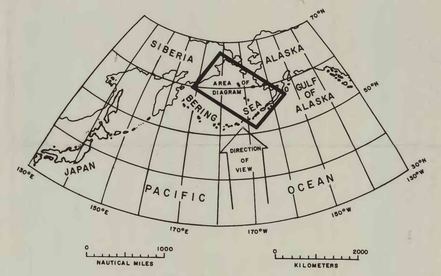




C. Cutaway of Physiography and subsurface sedimentary and basement sections.



SCALE
VERTICAL EXAGGERATION 10:1



INDEX MAP

Sheet 2

BERING SEA SHELF
ALASKA

by
M.S. Marlow, T.R. Alpha, D.W. Scholl and E.C. Buffington

1975

EXPLANATION

The indicated relief of basement rock (Sheet 1) mostly of pre-Tertiary age is based on a structure contour map of the Bering shelf (Marlow and others, in prep.) Approximately 23,400 km of seismic reflection lines were used to prepare this map. Travel times were converted to thickness using the velocity information of Houtz and others (1970), Ludwig and others (1971), and Hamilton and others (1974). The basement surface traced by the structure contours (Sheet 1) is the acoustic basement on reflection records. Over most of the shelf the acoustic basement is thought to be the surface of deformed rocks of Late Cretaceous and older age (Sheet 2; Scholl and others, 1968, Hopkins and others, 1969). Beneath the deeper parts of the basins underlying the outer shelf, e.g. Navarin and St. George, the acoustic basement is not clearly defined and the structure contours are only approximate guides to the surface of pre-Tertiary rocks. The folds within the basement rock shown on the cutaway drawing (Sheet 2) are diagrammatic representations. These drawings also show that the overlying sedimentary section includes a divergence in dip between older and younger Cenozoic beds. A regional unconformity, perhaps of Miocene age, may be implied by the divergence. Datum is sea level, structure contours are in meters.

REFERENCES

Baranov, A. N., (ed.), 1967, The world atlas: Chief, Adm. Geodesy and Cartography, under the Council of Ministers U.S.S.R., Moscow, 2nd ed., 250 p.

Chase, T. E., Menard, H. W., and Mammerickx, J., 1970, Bathymetry of the North Pacific: Scripps Inst. Oceanography and Inst. Marine Resources. Tech. Rept. Ser. TR-7, Chart No. 3.

Hamilton, E. L., Moore, D. G., Buffington, E. C., and Sherrer, P. L., 1974, Sediment velocities from sonobuoys; Bay of Bengal, Bering Sea, Japan Sea, and North Pacific: Jour. Geophys. Research, v. 79, p. 2653-2668.

Hopkins, D. M., Scholl, D. W., Addicott, W. O., and others, 1969, Cretaceous, Tertiary and early Pleistocene rocks from the continental margin in the Bering Sea: Geol. Soc. America Bull., v. 80, p. 1471-1480.

Houtz, R., Ewing, J., and Buhl, P., 1970, Seismic data from sonobuoy stations in the northern and equatorial Pacific: Jour. Geophys. Research, v. 75, p. 5093-5111.

Ludwig, W. J., Murauchi, S., Den, N., and others, 1971, Structure of Bowers Ridge, Bering Sea: Jour. Geophys. Research, v. 76, p. 6350-6366.

Marlow, M. S., Scholl, D.W., and Buffington, E.C., in preparation, Structure and evolution of the Bering Sea shelf: Am. Assoc. Petroleum Geologists Bull.

Nichols, H., and Perry, R. B., 1966, Bathymetry of the Aleutian arc, Alaska: Dept. Commerce, ESSA, U.S. Coast and Geod. Survey, Mon. 3, scale 1:400,000.

Pratt, R. M., and Walton, F., 1973, written communication, Unpublished bathymetric map of the Bering Sea: Dept. Commerce, NOAA, Natl. Ocean Survey, approx. scale 1:1,206,000.

Scholl, D. W., Buffington, E. C., and Hopkins, D. M., 1968, Geologic history of the continental margin of North America in the Bering Sea: Marine Geology, v. 6, p. 297-330.

U.S. Department of the Interior, U.S. Geological Survey, 1960, World (North America) 1:1,000,000: Bethel, NP 3, 4, and Bristol Bay, NO. 3, 4.

U.S. Department of the Interior, U.S. Geological Survey, and U.S. Navy Undersea Research and Development Center, 1970, Seismic reflection and precision depth recorder profiles.

Yanshin, A. L., (ed.), 1966, Tectonic map of Eurasia: Geol. Inst., Acad. Sci., U.S.S.R., Moscow, scale 1:5,000,000.